

Application No. 10/693,569

Amendment dated 09/27/2007 responding to Office Action dated 07/02/2007

REMARKS

These remarks address the Examiner's comments made in the Office Action mailed 02/09/2007.

(5) claims 1-2, 5-9 were rejected under 35 USC 102(a) as unpatentable over the admitted prior; (2) claims 3-4 were rejected under 35 USC 103(a) as unpatentable over the admitted prior art and further in view of Obviousness; (4) claims 10-21, 24-25 were rejected under 35 USC 103(a) as unpatentable over admitted prior art and further in view of US Patent No. 5,444,868 to Reynolds; (5) claims 22-23 were rejected under 35 USC 103(a) as unpatentable over admitted prior art and further in view of Reynolds and further in view of US Patent No. 5,243,344 to Koulopoulos

(1) Claims 1 and 15 objected to for informalities

Claims 1 was objected to for informalities, and has been amended to change "couplable" to "coupled".

(5) Claims 1-2, 5-9 rejected over admitted prior art

The office action misses the point – the admitted prior art includes a head unit (12), an external amplifier (16), and a bass boost control pod (22) which are physically separate units (having their own separate housings or chassis) and which are coupled together via electrical cables (18, 24). The bass boost control pod is coupled only to the external amplifier, and not to the head unit. Except for the master volume knob (14) on the head unit, and the bass boost itself, all other amplifier controls are located directly on the external amplifier.

By way of contrast, the claimed invention includes an control unit (50) which is physically separate from the external amplifier (70) and from the head unit (12). This control unit is coupled via a cable to the external amplifier and includes the controls for the amplifier.

Claim 1 distinguishes over the admitted prior art by reciting that the control unit is physically separate from the amplifier unit and the head unit. Claim 1 has been amended to ever further clarify this distinction. Claim 1 further distinguishes over the admitted prior art by reciting "at least one input connector for receiving at least one respective channel of audio signal

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from the head unit"; by way of contrast, the admitted prior art includes no external control unit which receives any signal from the head unit.

Claim 2 distinguishes over the admitted prior art by including the limitations of claim 1.

Claim 5 distinguishes over the admitted prior art by including the limitations of claim 1 and further by reciting a plurality of (sets of) input connectors, and that the amplifier amplifies audio signals provided at a selected one of the (sets of) input connectors. The language has been amended to better clarify that what is meant is not e.g. the ability to select between amplifying a left channel or a right channel, but rather the ability to select between amplifying a set of audio signals arriving at the DIN connector or a set of audio signals arriving at the RCA jacks.

Claim 6 distinguishes over the admitted prior art by including the limitations of claims 1 and 5 and further by reciting a DIN connector on the amplifier unit.

Claim 7 distinguishes over the admitted prior art by including the limitations of claim 1 and further by specifying that all of the amp controls are on the control unit. By way of contrast, in the admitted prior art only the bass boost control is on the separate pod, and the other many controls (gain, high pass, low pass, etc.) are located directly on the external amplifier itself.

Claim 8 distinguishes over the admitted prior art by including the limitations of claim 1 and further by specifying that the control unit (which is separate from the amplifier unit) includes a gain control. By way of contrast, in the admitted prior art, all of the gain controls are located directly on the external amplifier.

Claim 9 distinguishes over the admitted prior art by including the limitations of claim 1 and further by reciting that the control unit (which is separate from the amplifier unit) has a plurality of controls (whereas the admitted prior art bass boost pod includes only a single control for bass boost), and that those controls on the control unit comprise gain and one other.

Specific addressing of Office Action comments

Claim 1 The OA suggests (p.3) that the admitted prior art discloses "... a control unit ('fig.1-4/(14,22)...')". This is an erroneous and impermissible interpretation; the OA has taken the bass boost control pod 22 and somehow combined it with the master volume control 14 of the head unit. This appears to also be an ineffective attempt at using Applicant's own disclosure

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to construct a mosaic. The OA suggests (p.3) that that the thing being equated to the claimed control unit receives at least one audio channel signal from the head unit. This is incorrect. The bass boost pod of the admitted prior art sends a single-band (subwoofer) equalizer signal to the external amplifier. The bass boost pod does not receive a signal from anything, and is not connected to the head unit at all. The OA further suggests (p.4) that the circuitry in the claimed control unit for modifying audio signals must inherently exist in the base boost pod of the admitted prior art. This is incorrect. The bass boost pod includes no such circuitry; it is in essence only a knob, and all bass boosting circuitry is located in the external amplifier. The bass boost pod does not receive any audio channel signal. On another OA topic (p.4), Applicant admits that the mere amplification circuitry in the external amplifier is well-known in the industry, present in the external amplifier of the admitted prior art, and present in the amplifier unit of the claimed invention.

Claim 2 The OA vaguely suggests (p.4) that the pre-amp circuitry of the control unit is taught by the admitted prior art. However, the admitted prior art (e.g. the cited para. [0004]) teaches that the pre-amp is in the head unit, not in the bass boost pod (assuming for the sake of argument that the bass boost pod may be the closest analogy to the claimed control unit).

Claim 5 The OA comments re the amplifier unit's input connectors. Claim 5 has been amended to more clearly recite that the amplifier unit has plural sets (DIN and RCA) of input connectors, whereas the admitted prior art includes only a single set (RCA).

Claim 6 The OA recites Fig. 4 and para. [0006] of the admitted prior art as teaching both RCA and DIN connectors. However, the OA's mistake is that Fig. 4 and para. [0006] teach that the head unit could have both RCA and DIN outputs. By way of contrast, claim 6 recites that the amplifier unit has both RCA and DIN inputs. Compare Fig. 2 to Fig. 12 or 13.

Claim 7 The OA somewhat surprisingly sites the head unit's master volume control (14) and the bass boost control (22) and the head unit's station buttons as preventing claim 7 from reciting that "all of the controls of the audio amplifier system are located on the control unit". That makes no sense. The master volume control and station buttons are not even part of the amplifier system's controls – they are part of the head unit's controls. The point of claim 7 can clearly be seen by comparing Fig. 5 to Figs. 7 and 9 together. Fig. 5 shows that the admitted

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prior art's external amplifier itself holds the amplifier controls (e.g. gain, high pass filter, low pass filter). Fig. 9 shows that the claimed amplifier unit has no controls, while Fig. 7 shows that all of the amplifier controls (e.g. parameter, subsonic filter, gain, low pass filter, subwoofer phase, delay) are located on the control unit.

Claim 8 The OA references para. [0009] regarding gain control, but fails to deal with the fact that para. [0009] and Fig. 5 which it describes are teaching that the gain control is on the external amplifier, whereas claim 8 specifies that the gain control is on the control unit (which is physically separate from the amplifier unit).

Claim 9 The OA again references para. [0009] regarding the gain, filter, delay, etc. controls, but again fails to deal with the fact that para. [0009] and Fig. 5 teach that those are on the external amplifier in the admitted prior art, but that claim 9 recites that they are on the control unit.

(2) Claims 3-4 rejected over admitted prior art with Obviousness

Claim 3 distinguishes over the admitted prior art by including the limitations of claim 1 and further by reciting that the control unit (which is separate from the head unit and from the amplifier unit) receives audio channel signals from the head unit. By way of contrast, in the admitted prior art the bass boost pod receives signals only from the external amplifier, and not from the head unit. Claim 3 further distinguishes over the admitted prior art by reciting that the control unit circuitry combines two channels of audio signal from the head unit and provides the combined signal at one channel of output. The admitted prior art teaches nothing remotely similar to this.

Claim 4 distinguishes over the admitted prior art by including the limitations of claims 1 and 3 and further by specifying that the control unit can combine left and right channel signals to provide to a center channel input of the external amplifier. The admitted prior art teaches nothing remotely similar to this.

Specific addressing of Office Action comments

Claim 3 The OA cites para. [0006] and Fig. 4 regarding input connectors for receiving at least two audio channels, and an output connector. But, again, the OA completely fails to address

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the fact that para. [0006] and Fig. 4 expressly teach that in the admitted prior art the only audio input connectors are those on the external amplifier and the auxiliary inputs on the head unit. The OA fails to address the fact that claim 3 specifies that the control unit includes audio channel inputs and circuitry for combining (e.g. L and R) audio channel signals onto a single output. The OA then takes official notice that channel combining is known in the art. Applicant admits that it is known in the art. However, what is not known in the art (until Applicant's disclosure) is to do so on a control unit which is separate from the head unit and from the amplifier unit. And that is what is claimed.

Claim 4 The same comments apply here as given above re claim 3 and the OA.

(4) Claims 10-21, 24-25 rejected over admitted prior art with Reynolds

Claim 10 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 1 and further by reciting "a docking bay". Nothing in the admitted prior art nor in Reynolds comprises a "bay", much less one into which a control unit can be docked.

Reynolds does not teach a separate control unit at all. Reynolds teaches a head unit (16), an external amplifier (14), and a transceiver (12) which optionally mates the head unit to the external amplifier for the express purposes of providing the ability to swap modular power amplifier units and modular head units (col. 5 lines 1-12) and of providing an overall radio having identical cross-sectional dimensions throughout its entire length (meaning "depth") (col. 5 lines 23-29). Reynolds is utterly silent as to the transceiver having any controls, and indeed from the drawings and the text it clearly appears that the transceiver does not have any controls.

If one were to combine Reynolds with the admitted prior art, one would not have separate head unit, control unit, and amplifier unit. Rather, all one would have would be a modular head unit coupled to a common transceiver coupled to a modular external amplifier, with a bass boost control pod coupled only to the external amplifier and having only a bass boost control. This combination in no way teaches or makes obvious a docking bay into which a control unit could be docked into an amplifier unit.

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Claim 11 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 1 and 10, and further by reciting an input connector of the docking bay adapted to mate with an output connector of the docked control unit.

Claim 12 distinguishes over the admitted prior art with Reynolds by reciting a control unit (separate from the head unit and from the amplifier unit) which includes connectors for receiving audio channel signals from the head unit, a plurality of controls including a gain control, etc. It further distinguishes over the admitted prior art with Reynolds by reciting that the input connector of the amplifier unit (which is separate from the control unit and the head unit) receives modified audio signals from the control unit.

Claim 13 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12 and further by reciting a cable from the control unit output to the amp input.

Claim 14 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12 and further by specifying that the control unit output and the amplifier input are DIN connectors.

Claim 15 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12 and further by specifying that all of the amplifier system's gain controls are located on the control unit. By way of contrast, Reynolds is silent as to gain controls (or any other controls), and the admitted prior art has gain controls only directly on the external amplifier.

Claim 16 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12.

Claim 17 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12 and further by specifying that the control unit includes a delay control. By way of contrast, neither the admitted prior art nor Reynolds mentions delay at all.

Claims 18-19 distinguish over the admitted prior art with Reynolds by including the limitations of claims 12 and 17.

Claim 20 is cancelled.

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Claim 21 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12 and further by reciting that the control unit includes a multi-channel equalizer. Neither the admitted prior art nor Reynolds teaches equalizers.

Claim 24 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12 and further by specifying a docking bay.

Claim 25 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12 and further by specifying a list of controls that the control unit has, none of which (except bass boost) is present on the control pod of the admitted prior art, and none of which is mentioned by Reynolds. And even as to the bass boost control, the prior art does not teach one that is on a control unit which receives "audio channel signals from the head unit" as specified in claim 12.

Specific addressing of Office Action comments

Claim 10 The OA alleges that Reynolds teaches a docking bay, but that is incorrect. Reynolds does not teach a docking bay, much less the claimed "docking bay adapted for docking the control unit." The OA cites Reynolds' Fig. 1A, but that shows only three blocks labeled "power amp", "xceiver", and "control head", none of which is or has a docking bay. The OA also cites Reynolds' Fig. 2, but that shows only the control head (16a), the transceiver (12), the power amp (14a), and a pair of gaskets (24, 26) for mating the three end-to-end, and a number of bolts and cables. The OA cites Reynolds' col. 5 lines 23-30, but that says only that "the selected power amplifier 14 and the selected control head 16 may be mechanically and electrically connected to the transceiver 12 at opposite ends to form an integrated mobile radio having identical cross-sectional dimensions throughout substantially its entire length, the differences in dimensions being solely in the longitudinal dimension." (emphasis added) This is a very appropriate section of Reynolds to cite, because it does in fact summarize all of what Reynolds teaches – that the apparently passive transceiver module enables the modular mix-and-match selection of different head units and different amplifier units, which can then be bolted together end-to-end. End-to-end is fundamentally different than "docking bay".

The OA further asserts that "it would have been obvious for one of ordinary skill in the art to modify the admitted prior art by incorporating the amplifier unit comprises a docking bay

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adapted for docking the control unit for purposes of forming an integrated an radio system.” This assertion contains at least two critical errors. First, it implies again that Reynolds teaches a docking bay which one of ordinary skill would think to incorporate into the admitted prior art. Reynolds does not. Second, it implies either that the purpose of Applicant’s invention (like the purpose of Reynolds’ invention) is “forming an integrated radio system.” Applicant’s invention does not form an integrated radio system. Applicant’s disclosure specifically teaches that the head unit is located in the dashboard, the power amp is located e.g. in the trunk, and the amp control unit may be permanently located somewhere in the passenger compartment e.g. in the dashboard near the head unit, or it may be temporarily located in the passenger compartment on a tether cable during initial installation and setup then moved to the amplifier’s docking bay in the trunk. None of that even remotely resembles what Reynolds teaches.

Claim 11 The OA cites Reynolds’ Fig. 2 and specifically elements 28 and 27 as being a docking bay’s input connector adapted to mate with the output connector of the control unit. This is replete with errors. First, connector 28 is a connector on the transceiver (which is not a control unit and does not have a docking bay), and element 27 is a ribbon cable extending from the head unit. Those do not equate to a docking bay’s connector nor a control unit’s connector. And furthermore, Reynolds does not suggest that they “mate”. The word “mate” is widely understood to mean that two couplers or other elements automatically align with each other and then engage each other as the two units are brought together. By way of contrast, even ignoring the key error noted above, Reynolds’ connector 28 and ribbon cable 27 do not mate at all. If his head unit 16a were simply aligned with his transceiver 12 and the two were bolted together, the ribbon cable 27 would never engage the connector 28 and would, in all likelihood, be left hanging from and pinched between the two components. Contrast that with the teachings of Applicant’s Figs. 8-10, where it is shown that the control unit 50 has a DIN connector 60 and the amplifier unit 70 has a DIN connector 78 which are positioned such that, when the control unit is docked as shown in Fig. 10, the DIN connectors “mate” directly and automatically without the need for any intervening cable or the like.

Claim 12 The OA’s many errors re claim 12 are addressed by the comments above, and it is not necessary for the explanations to be repeated here. In short, Reynolds’ transceiver is not a control unit, Reynolds does not teach gain or any other controls, Reynolds never even hints that

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his transceiver would perform any sort of modifications of the audio signals. The OA sets up an inadequate strawman and then knocks it down, but fails to address the distinguishing limitations expressly present in claim 12.

Claim 13 The OA cites Reynolds' element 18 in Fig. 2 as corresponding to the claimed cable. As indicated at Reynolds' col. 5 line 48, element 18 is merely "the rear end of the common transceiver". Reynolds does show a cable 23 (presumably for carrying audio channel signals) and a set of cables 29 identified as a power connection, but those are not, as required in claim 13, "coupling the amplifier unit connector to the control unit output connector" (emphasis added) because, again, Reynolds' transceiver simply is not a control unit.

Or it is possible that the OA was referring to Applicant's Fig. 2 and element 18, which is a set of audio channel wires in the admitted prior art. But, again, those extend from the head unit 12 to the external amplifier 16, and are not connected at either end to a control unit.

Claim 14 The OA misses the point. Applicant is not claiming to have invented the DIN connector nor the umbilical cable. What is claimed in claim 14 is that the control unit output is a DIN connector, etc. Neither the admitted prior art nor Reynolds teaches a control unit. The fact that the admitted prior art shows a DIN connector is of no consequence in light of this larger fact.

Claim 15 The OA cites para. [0009] regarding a plurality of controls, but again fails to address the fact that para. [0009] and Fig. 5 which it describes are teaching gain etc. controls located directly on the external amplifier. By way of stark contrast, claim 15 specifies that all of the amplifier system's gain etc. controls are located on the control unit. In other words, claim 15 means that none of the gain etc. controls are located on the amplifier unit – the exact opposite of what is taught in para. [0009] and Fig. 5.

Claim 16 The OA cites para. [0009] regarding a filter control. But, like with claim 15, claim 16 recites that the filter control is located on the control unit, whereas para. [0009] and Fig. 5 teach that the filter control is located on the external amplifier.

Claim 17 The OA takes official notice that delay controls are known and that it would have been obvious "to have plurality of control comprises a delay control for purpose of achieving optimal setting". Even assuming for the sake of argument that delay controls are

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known and that it would have been obvious to have one, the OA completely fails to address the critical fact that claim 17 specifies that the delay control is located on the control unit.

Claim 18 The OA lumps its analysis of claim 18 with that of claim 17, and Applicant agrees – the fact that phase controls are known does not address the fact that claim 18 recites that the phase control is located on the control unit, which neither the admitted prior art nor Reynolds teaches or suggests or makes obvious in any degree.

Claim 19 The OA cites Fig. 1 element 22 and para. [0004] lines 13-15 regarding claim 19. Element 22 of the admitted prior art is, in fact, a bass boost control. But it is not located on a control unit “for receiving the plurality of audio channel signals from the head unit” nor one which includes “at least a gain control” nor one which includes “circuitry for modifying the plurality of audio signals” nor one that has “a control unit output connector for outputting the plurality of modified audio signals”. The bass boost pod 22 of the admitted prior art is connected only to the external amplifier, and not to the head unit, and is merely a knob with e.g. a variable resistor (“pot”) for setting the bass boost of the amplifier.

Claim 20 Claim 20 has been cancelled.

Claim 21 The OA cites para. [0004] regarding a multi-channel equalizer. By way of contrast, claim 21 recites a multi-channel equalizer whereas para. [0004] teaches that “the bass boost control is only a single-band equalizer”. (emphasis added) Furthermore, claim 21 recites that the multi-channel equalizer is part of the plurality of controls on the control unit which is connected to the head unit, whereas para. [0004] teaches the bass boost pod is the sole control and is coupled only to the external amplifier.

Claim 24 The OA again cites Reynolds as teaching a docking bay. This has been more than adequately addressed above.

Claim 25 The OA cites the admitted prior art as teaching some of the controls, and asserts that the others are well known in the art. But, once again, the OA fails to deal with the fact that the claimed controls are expressly recited as residing on a control unit, whereas in the prior art they are located on the external amplifier.

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Claims 26-30 The OA includes paragraphs on pp. 14-15 regarding claims 26-30, but the OA paragraph 4 on p.8 does not indicate that those claims have been rejected.

Claim 26 The OA lumps its analysis of claim 26 with its analysis of claim 12. Applicant again points out that the OA's analysis is defective, in that, among other things, the admitted prior art and Reynolds do not teach "a control unit coupled to the head unit, an external amplifier coupled to the control unit" nor "all channel gain controls for the amplifier being located on the control unit".

Claim 27 Claim 27 distinguishes over the prior art by including the limitations of claim 26. The OA cites para. [0009] regarding gain control, but as before fails to address the limitation that the gain control is located on the control unit.

Claim 28 Claim 28 distinguishes over the prior art by including the limitations of claims 26 and 27. The OA cites para. [0009] regarding filter control, but as before fails to address the limitation that the filter control is located on the control unit.

Claim 29 Claim 29 distinguishes over the prior art by including the limitations of claims 26-28. The OA cites para. [0006] regarding auxiliary unit, but as before fails to address the limitation that the auxiliary input is located on the control unit (which is inherent in the recitation of "selecting back and forth between audio signals provided by the head unit and audio signals provided by an auxiliary unit".) As seen in Figs. 2 and 4, in the prior art the auxiliary input is on the head unit.

Claim 30 Claim 30 distinguishes over the prior art by including the limitations of claim 26, and further by reciting removing the control unit from the passenger compartment and docking it into a docking bay on the external amplifier. The OA again cites Reynolds' Fig. 2, which still doesn't show a docking bay.

(5) Claims 22-23 rejected over admitted prior art with Reynolds and Koulopoulos

Claim 22 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12 and further by reciting that the control unit has an auxiliary input connector. Neither the admitted prior art nor Reynolds teaches any auxiliary anything. Claim 22 further distinguishes by reciting an input selector control.

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Claim 23 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 12 and 22 and further by reciting input volume compensation.

Specific addressing of Office Action comments

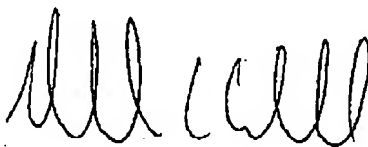
Claim 22 The OA cites Koulopoulos' col. 14 lines 45-55 as teaching input selector controls. Koulopoulos' cited controls are located on a home audio receiver, which is most nearly analogous to a car audio head unit or, more commonly, to a car audio head unit with an integrated amplifier. Applicant does not claim to be the inventor of input selector controls. What claim 22 recites is an auxiliary input connector and input selector control on a control unit located between a head unit and an amplifier unit. Neither Koulopoulos, Reynolds, nor the admitted prior art teach this, either individually or taken in combination.

Claim 23 The OA cites Applicant's Fig. 1 element 14 (master volume control), para. [0004], and Koulopoulos' col. 14 lines 45-55 regarding the claimed "input volume means for compensating for signal level difference". Nothing Applicant's attorney could find in Koulopoulos deals with signal level compensation, and nothing in the admitted prior art or Reynolds does, either. Koulopoulos teaches multiple inputs, but does not appear to address compensating for signal level differences between them. And, most importantly, claim 23 recites such as being located on the control unit, which is separate from the head unit and the amplifier unit.

CONCLUSION

Applicant respectfully requests allowance of the claims. The art cited neither anticipates nor obviates the claimed subject matter.

Respectfully submitted,



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